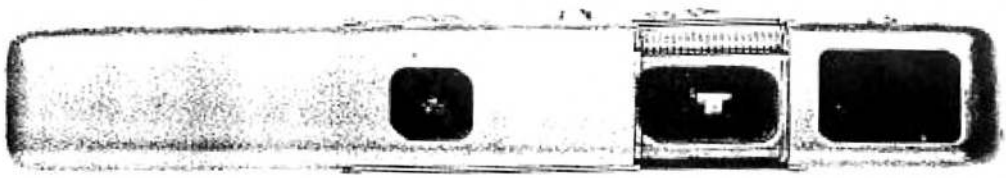


Minox B

First produced in Latvia in the Late 1930's, the Minox was moved by WWII to Germany. In Germany the Minox evolved from a non-metered, not so reliable novelty, into the quality miniature it is today. This article covers the Minox B, which, although it's no longer in production, is still seen being used by photographers who require a precision miniature camera.

Despite its tiny size and the complexity you would imagine would be necessary to produce a camera as versatile as the Minox in so small a package, the Minox B is not a difficult camera to repair. Let's plunge in . . .

DISASSEMBLY OF THE MINOX

Begin disassembly by opening the camera to the picture-taking position. If possible, trip the shutter. By releasing the shutter, you'll be making damage to the shutter blade springs less likely. You can tell if the shutter releases by watching the indicator dot on the opening blade; the dot is visible through the lens window when the shutter is cocked.

Now, depress the film door latch and open the film door. Inside the film compartment, identify the starhead screw and its lock screw. Loosen the lock-screw and then the starhead screw. This will allow you to slip the end shell from the camera body. If it was not possible to release the shutter before disassembly,

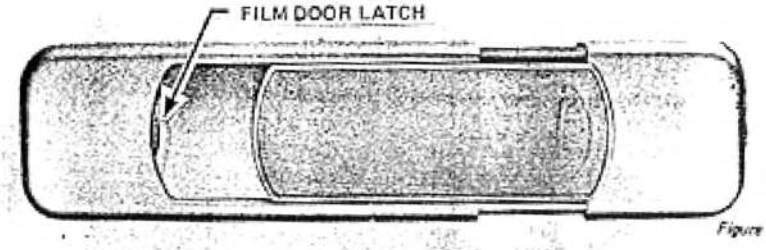


Figure 1

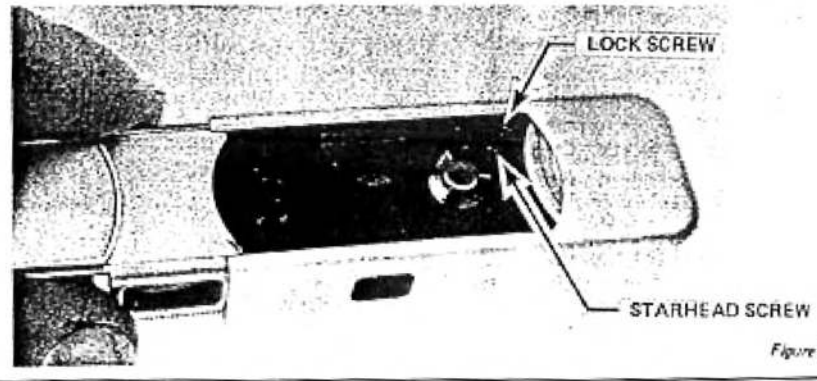


Figure 2

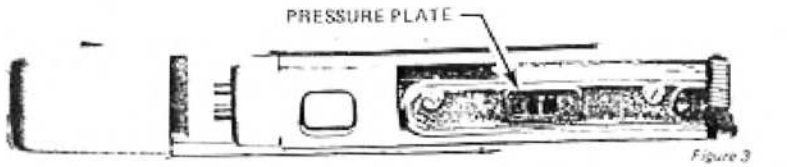


Figure 3

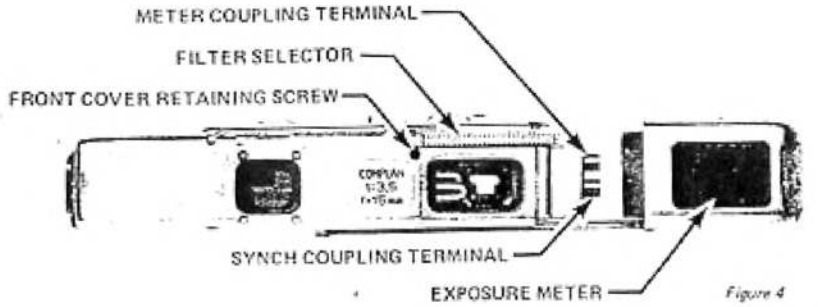


Figure 4

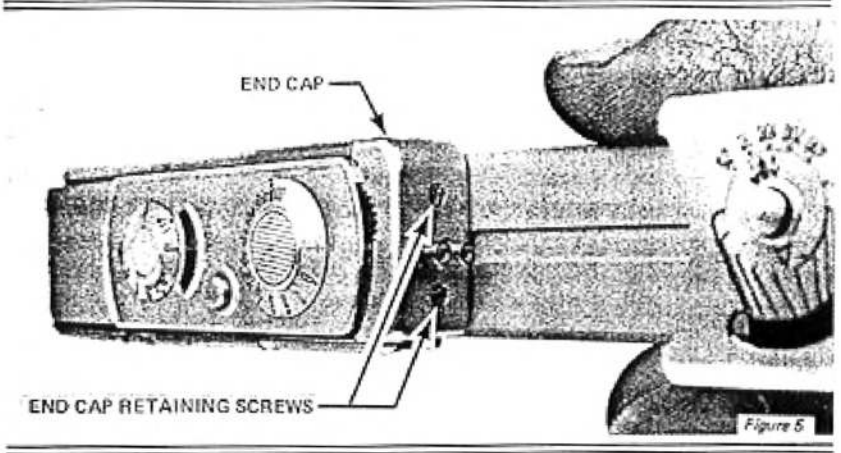


Figure 5

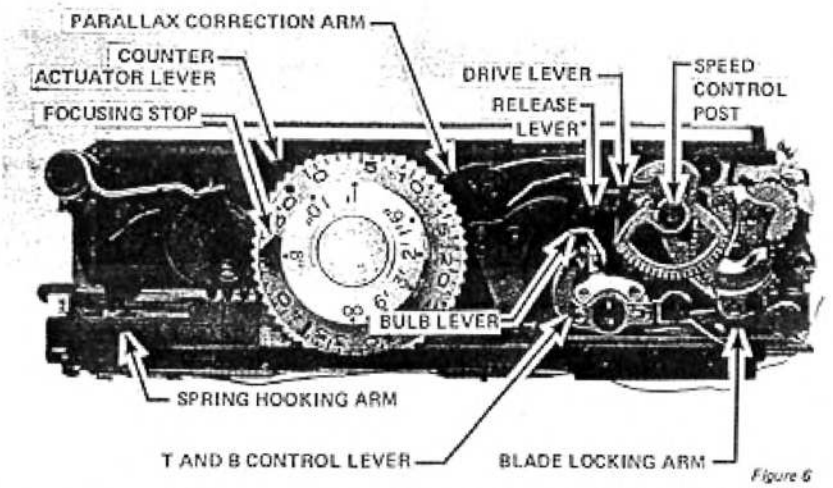


Figure 6

this step must be performed with extra care to avoid damage to the shutter blade springs. Specifically, as soon as a small gap appears between the camera body and end shell, reach into the gap with a screwdriver or other suitable tool and gently spread the spring hooking arm so that it frees the end shell. If you've released the shutter, the blade springs can't be damaged so you may pull the end shell farther from the body to unhook the arm. But don't pull the end shell out too far because the shutter blades will be removed from their guide. Once the end shell has been removed, both the back and the front cover may be removed. Unless you suspect damage to the viewfinder, or to the pressure plate, it won't be necessary to remove the back cover.

To remove the front cover, place the green or neutral density filter in front of the lens using the filter selector. Doing this places the filter assembly beneath its detent spring and prevents the filter assembly from falling free from the camera body once the front cover is off. Next, remove the small screw located above and to the right of the lens identification. Then gently slip the front cover to the left while lifting it away from the body.

With the front cover removed, you'll be able to free the film compartment door-exposure meter assembly. Lift the front edge of the door to free it from the camera body. Now, remove the two screws holding the end cap in place and remove the end cap. Be careful, a length of magnet wire connects the meter terminal on the end cap to the filter detent meter switch on the body. On some cameras the front cover may be tight. On these cameras you'll have to remove the end cap before the front cover and film door.

Removing the end cap uncovers the single top cover retaining screw. Remove the top cover retaining screw and lift up gently on the top cover. Slip the top cover slightly to the left and lift it from the body. Watch for the shutter release button, it's loose at this point. Also notice that with the top cover removed the focusing stop is free to move. Because of this, you'll have to be careful not to let the focus knob rotate too far and uncouple from the lens.

To remove the shutter blades extend the spring hooking arm and release the shutter; then continue to pull out on the hooking arm, removing the arm, shutter blade springs and the blades. Before removing the shutter blade guide lift out the viewfinder window. The blade guide

is held by two screws exposed once the blades have been removed. Access to the guide screws is through the cutouts on either side of the lens opening. Although it's possible to remove the blade guide with the meter resistor in place the procedure will be easire if you unsolder the meter resistor at its filter detent meter switch end first.

You probably won't find it necessary to disassemble the camera beyond this point for most repairs.

SHUTTER OPERATION

In order to make the Minox B easier to repair, here's a brief description of the shutter's operation: Key to the shutter's operation is the blade locking arm with its locking pins. If you look carefully, you'll notice that the blade locking pins are of unequal length. This is so that, as the blade locking arm moves into the camera body, first the opening blade, then the closing blade is released. By controlling the rate at which the blade locking arm travels back into the camera body, the shutter speed is varied. To reach the cocked position, the spring hooking arm cocks the mechanism and through the shutter blade springs, pushes the shutter blades to the ready position. In the ready position, the blade locking pins drop into the cutouts in the shutter blades. At this point, the drive lever is in the cocked position.

Re-opening the camera causes the shutter blades to pull against the blade locking pins and the drive lever to rest against the release lever. Tripping the release lever allows the drive lever to move. The drive lever is coupled to the blade locking arm so the blade locking arm moves away from the blades as the drive lever moves. The time between release of the opening and closing blades is controlled by the rate of travel of the drive lever between the release of the opening and closing blade. The initial position of the speed control post determines the interval between the release of the first and the second blade.

When the shutter is set to deliver bulb, the T and B control lever is moved inward slightly so that the bulb lever can intercept the drive lever. When the release lever is pressed, in addition to freeing the drive lever, it rocks the bulb lever up into the path of the drive lever. The drive lever is intercepted mid-way between the release of the opening and the release of the closing blade. Removing pressure from the release lever allows both release lever and bulb lever to return to their rest positions. Time operation is provided in a similar manner.

On time, the T and B control lever is pushed inward a bit farther so that both bulb and time levers are in the path of the drive lever. Once released, the drive lever is intercepted by the bulb lever, then as the release lever is allowed to return to the ready position, the time lever moves upward and once again intercepts the drive lever. Finally, re-depressing the release button lifts the time lever so that the drive lever clears beneath it. Articulation of bulb and time lever is accomplished by coupling the selector lever to the time and bulb lever with a piece of spring steel. This allows the time and bulb lever to flex up and down while the selector lever remains in position.

REASSEMBLY AND ADJUSTMENT

Once the front cover is on collimation can't be adjusted so check collimation before beginning reassembly. Because the Minox uses a floating pressure plate operated by the end shell you'll have to hold the pressure plate in while checking or adjusting collimation. To adjust focus rotate the innermost ring around the lens elements. You may make this adjustment with the shutter blades installed and open on time if you wish.

Most of the reassembly of the Minox is the reverse of disassembly, however there are some points you must watch.

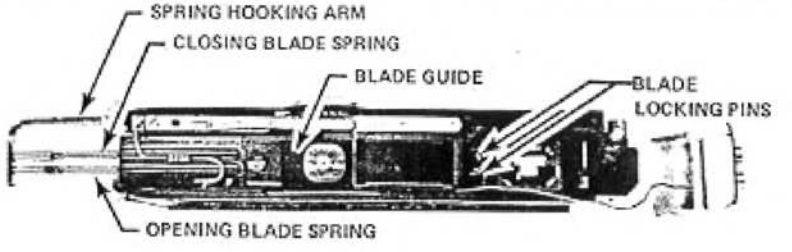
When reinstalling the shutter blades be sure that the blades don't snag on their way through the lens opening cutout. Also check the blade locking pins if you've been working on the governor mechanism, if the pins are extended the blades could become bent during assembly. If the blades need straightening sometimes placing them on a bench block and smoothing them with a soft plastic tool will take the kinks out.

Often the film counter dial will pop out of place during the course of a repair. To reseat the dial, push the spring hooking arm in then rotate the dial slightly while guiding the dial into position.

When replacing the top cover, set the speed dial to "2", this allows the speed control post and T and B control lever stud to engage the speed cam correctly. Speed adjustments are made by turning the speed adjusting screw located beneath the end cap.

After the end cap is secured you can make sync adjustments. Because it's difficult to check sync through the lens, you'll probably find it easiest to use an electronic flash to "freeze" the motion of the blades. To set X sync, insert a small screwdriver into the sync coupling terminal and rotate the fixed contact, moving it in or out until correct sync is obtained.

If you're a *Craftsman* reader who would like to know more about the history of the Minox, check Jason Schneider's column in Modern Photography, September and October 1972.



SHUTTER IN THE COCKED POSITION *Figure 7*

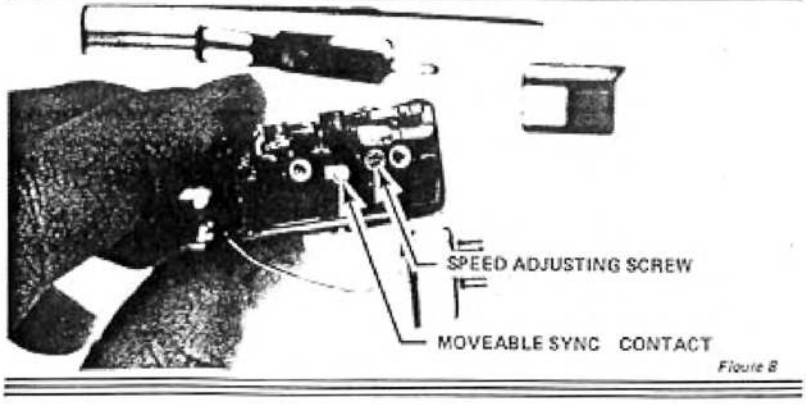


Figure 8

COURTESY OF THE CAMERA CRAFTSMAN / MINOXDOC